

SUBSTITUTE SEQUENCE LISTING

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<120> Diabetogenic Epitopes

<130> 034205.003 (08899427US1)

<140> 10/597,034
<141> 2006-10-03

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<151> 2005-01-09

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<151> 2004-01-09

<160> 52

<170> PatentIn version 3.3

<210> 1
<211> 10
<212> PRT
<213> Artificial

<220>
<223> Diabetogenic epitope from gliadin protein isoforms or Gb1
based
on wheat protein

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Glu Glu Gln Leu Arg Glu Leu Arg Arg Gln
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<212> PRT
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<223> Tryptic peptide of wheat storage globulin

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Val Ala Ile Met Glu Val Asn Pro Arg
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<212> DNA
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<223> Wheat gene

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2018

<210> 4
<211> 588
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<223> WP5212 wheat protein sequence

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Glu Asp Arg Arg Gly Gly Arg Ser Leu Gln Arg Cys Val Gln Arg Cys
35 40 45

Gln Gln Asp Arg Pro Arg Tyr Ser His Ala Arg Cys Val Gln Glu Cys
50 55 60

Arg Asp Asp Gln Gln His Gly Arg His Glu Gln Glu Glu Gln Gly
65 70 75 80

Arg Gly His Gly Arg His Gly Glu Gly Arg Glu Glu Glu Gln Gly
85 90 95

Arg Gly Arg Gly Arg Arg Gly Gln Gly Glu Arg Glu Glu Gln Gly
100 105 110

Arg Gly Arg Gly Arg Arg Gly Glu Gly Glu Arg Asp Glu Glu His Gly
115 120 125

Asp Gly Arg Arg Pro Tyr Val Phe Gly Pro Arg Ser Phe Arg Arg Ile
130 135 140

Ile Arg Ser Asp His Gly Phe Val Lys Ala Leu Arg Pro Phe Asp Glu
145 150 155 160

Val Ser Arg Leu Leu Arg Gly Ile Arg Asn Tyr Arg Val Ala Ile Met

165

170

175

Glu Val Asn Pro Arg Ala Phe Val Val Pro Gly Leu Thr Asp Ala Asp
 180 185 190

Gly Val Gly Tyr Val Ala Gln Gly Glu Gly Val Leu Thr Val Ile Glu
 195 200 205

Asn Gly Glu Lys Arg Ser Tyr Thr Val Arg Gln Gly Asp Val Ile Val
 210 215 220

Ala Pro Ala Gly Ser Ile Met His Leu Ala Asn Thr Asp Gly Arg Arg
 225 230 235 240

Lys Leu Val Ile Ala Lys Ile Leu His Thr Ile Ser Val Pro Gly Lys
 245 250 255

Phe Gln Tyr Phe Ser Ala Lys Pro Leu Leu Ala Ser Leu Ser Lys Arg
 260 265 270

Val Leu Thr Ala Ala Leu Lys Thr Ser Asp Glu Arg Leu Gly Ser Leu
 275 280 285

Leu Gly Ser Arg Gln Gly Lys Glu Glu Glu Lys Ser Ile Ser Ile
 290 295 300

Val Arg Ala Ser Glu Glu Gln Leu Arg Glu Leu Arg Arg Gln Ala Ser
 305 310 315 320

Glu Gly Asp Gln Gly His His Trp Pro Leu Pro Pro Phe Arg Gly Asp
 325 330 335

Ser Arg Asp Thr Phe Asn Leu Leu Glu Gln Arg Pro Lys Ile Ala Asn
 340 345 350

Arg His Gly Arg Leu Tyr Glu Ala Asp Ala Arg Ser Phe His Ala Leu
 355 360 365

Ala Gln His Asp Val Arg Val Ala Val Ala Asn Ile Thr Pro Gly Ser
 370 375 380

Met Thr Ala Pro Tyr Leu Asn Thr Gln Ser Phe Lys Leu Ala Val Val
385 390 395 400

Leu Glu Gly Glu Gly Glu Val Glu Ile Val Cys Pro His Leu Gly Arg
405 410 415

Asp Ser Glu Arg Arg Glu Gln Glu His Gly Lys Gly Arg Trp Arg Ser
420 425 430

Glu Glu Glu Glu Asp Asp Arg Arg Gln Gln Arg Arg Arg Gly Ser Gly
435 440 445

Ser Glu Ser Glu Glu Glu Gln Asp Gln Gln Arg Tyr Glu Thr Val Arg
450 455 460

Ala Arg Val Ser Arg Gly Ser Ala Phe Val Val Pro Pro Gly His Pro
465 470 475 480

Val Val Glu Ile Ala Ser Ser Arg Gly Ser Ser Asn Leu Gln Val Val
485 490 495

Cys Phe Glu Ile Asn Ala Glu Arg Asn Glu Arg Val Trp Leu Ala Gly
500 505 510

Arg Asn Asn Val Ile Ala Lys Leu Asp Asp Pro Ala Gln Glu Leu Ala
515 520 525

Phe Gly Arg Pro Ala Arg Glu Val Gln Glu Val Phe Arg Ala Lys Asp
530 535 540

Gln Gln Asp Glu Gly Phe Val Ala Gly Pro Glu Gln Gln Glu His
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<210> 5
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<223> Alpha/beta-gliadin A-II precursor of wheat protein

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20 25 30

Pro Ser Gln Gln Gln Pro Gln Glu Gln Val Pro Leu Val Gln Glu Gln
35 40 45

Gln Phe Gln Gly Gln Gln Pro Phe Pro Pro Gln Gln Pro Tyr Pro
50 55 60

Gln Pro Gln Pro Phe Pro Ser Gln Gln Pro Tyr Leu Gln Leu Gln Pro
65 70 75 80

Phe Pro Gln Pro Gln Leu Pro Tyr Pro Gln Pro Gln Pro Phe Arg Pro
85 90 95

Gln Gln Pro Tyr Pro Gln Pro Gln Tyr Ser Gln Pro Gln Gln
100 105 110

Pro Ile Ser Gln
115 120 125

Gln Gln Ile Leu Gln Gln Ile Leu Gln Gln Gln Leu Ile Pro Cys Arg
130 135 140

Asp Val Val Leu Gln Gln His Asn Ile Ala His Gly Ser Ser Gln Val
145 150 155 160

Leu Gln Glu Ser Thr Tyr Gln Leu Val Gln Gln Leu Cys Cys Gln Gln
165 170 175

Leu Trp Gln Ile Pro Glu Gln Ser Arg Cys Gln Ala Ile His Asn Val
180 185 190

Val His Ala Ile Ile Leu His Gln Gln His His His Gln Gln Gln
195 200 205

Gln Gln Gln Gln Gln Gln Pro Leu Ser Gln Val Ser Phe Gln Gln
210 215 220

Pro Gln Gln Gln Tyr Pro Ser Gly Gln Gly Phe Phe Gln Pro Ser Gln
225 230 235 240

Gln Asn Pro Gln Ala Gln Gly Ser Phe Gln Pro Gln Gln Leu Pro Gln
245 250 255

Phe Glu Glu Ile Arg Asn Leu Ala Leu Gln Thr Leu Pro Ala Met Cys
260 265 270

Asn Val Tyr Ile Pro Pro Tyr Cys Thr Ile Ala Pro Phe Gly Ile Phe
275 280 285

Gly Thr Asn
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<212> PRT
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<223> Alpha/beta-gliadin MM1 precursor of wheat protein

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Ala Arg Ile Ala Val Arg Val Pro Val Pro Gln Leu Gln Pro Gln Asn
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Pro Ser Gln Gln Gln Pro Gln Glu Gln Val Pro Leu Val Gln Gln Gln
35 40 45

Gln Phe Pro Gly Gln Gln Pro Phe Pro Pro Gln Gln Pro Tyr Pro
50 55 60

Gln Pro Gln Pro Phe Pro Ser Gln Gln Pro Tyr Leu Gln Leu Gln Pro

65

70

75

80

Phe Pro Gln Pro Gln Leu Pro Tyr Pro Gln Pro Gln Leu Pro Tyr Pro
85 90 95

Gln Pro Gln Leu Pro Tyr Pro Gln Pro Gln Pro Phe Arg Pro Gln Gln
100 105 110

Pro Tyr Pro Gln Ser Gln Pro Gln Tyr Ser Gln Pro Gln Gln Pro Ile
115 120 125

Ser Gln Lys Gln Gln
130 135 140

Gln Gln Gln Gln Gln Ile Leu Gln Gln Ile Leu Gln Gln Gln Leu
145 150 155 160

Ile Pro Cys Arg Asp Val Val Leu Gln Gln His Ser Ile Ala Tyr Gly
165 170 175

Ser Ser Gln Val Leu Gln Gln Ser Thr Tyr Gln Leu Val Gln Gln Leu
180 185 190

Cys Cys Gln Gln Leu Trp Gln Ile Pro Glu Gln Ser Arg Cys Gln Ala
195 200 205

Ile His Asn Val Val His Ala Ile Ile Leu His Gln Gln Gln Gln Gln
210 215 220

Gln Gln Gln Gln Gln Gln Pro Leu Ser Gln Val Ser Phe Gln Gln
225 230 235 240

Pro Gln Gln Gln Tyr Pro Ser Gly Gln Gly Ser Phe Gln Pro Ser Gln
225 230 235 240

Gln Asn Pro Gln Ala Gln Gly Ser Val Gln Pro Gln Gln Leu Pro Gln
260 265 270

Phe Glu Glu Ile Arg Asn Leu Ala Leu Glu Thr Leu Pro Ala Met Cys
275 280 285

Asn Val Tyr Ile Pro Pro Tyr Cys Thr Ile Ala Pro Val Gly Ile Phe
290 295 300

Gly Thr Asn
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<212> PRT
<213> Triticum aestivum

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Gly Thr Ala Asn Ile Gln Val Asp Pro Ser Gly Gln Val Gln Trp Leu
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Gln Gln Gln Leu Val Pro Gln Leu Gln Gln Pro Leu Ser Gln Gln Pro
35 40 45

Gln Gln Thr Phe Pro Gln Pro Gln Gln Thr Phe Pro His Gln Pro Gln
50 55 60

Gln Gln Val Pro Gln Pro Gln Gln Pro Gln Gln Pro Phe Leu Gln Pro
65 70 75 80

Gln Gln Pro Phe Pro Gln Gln Pro Gln Gln Pro Phe Pro Gln Thr Gln
85 90 95

Gln Pro Gln Gln Pro Phe Pro Gln Gln Pro Gln Gln Pro Phe Pro Gln
100 105 110

Thr Gln Gln Pro Gln Gln Pro Phe Pro Gln Gln Pro Gln Gln Pro Phe
115 120 125

Pro Gln Thr Gln Gln Pro Gln Gln Pro Phe Pro Gln Leu Gln Gln Pro
130 135 140

Gln Gln Pro Phe Pro Gln Pro Gln Gln Leu Pro Gln Pro Gln Gln
145 150 155 160

Pro Gln Gln Ser Phe Pro Gln Gln Gln Arg Pro Phe Ile Gln Pro Ser
165 170 175

Leu Gln Gln Gln Leu Asn Pro Cys Lys Asn Ile Leu Leu Gln Gln Cys
180 185 190

Lys Pro Ala Ser Leu Val Ser Ser Leu Trp Ser Ile Ile Trp Pro Gln
195 200 205

Ser Asp Cys Gln Val Met Arg Gln Gln Cys Cys Gln Gln Leu Ala Gln
210 215 220

Ile Pro Gln Gln Leu Gln Cys Ala Ala Ile His Ser Val Val His Ser
225 230 235 240

Ile Ile Met Gln Gly Met His
245 250 255

Ile Phe Leu Pro Leu Ser Gln Gln Gln Val Gly Gln Gly Ser Leu
260 265 270

Val Gln Gly Gln Gly Ile Ile Gln Pro Gln Gln Pro Ala Gln Leu Glu
275 280 285

Ala Ile Arg Ser Leu Val Leu Gln Thr Leu Pro Ser Met Cys Asn Val
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Val Ala Gly Ile Gly Gly Gln
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Gln Gln Gln Pro Phe Pro Gln Pro Gln Gln Pro Phe Cys Gln Gln Pro
35 40 45

Gln Gln Thr Ile Pro Gln Pro His Gln Thr Phe His His Gln Pro Gln
50 55 60

Gln Thr Phe Pro Gln Pro Gln Gln Thr Tyr Pro His Gln Pro Gln Gln
65 70 75 80

Gln Phe Pro Gln Thr Gln Gln Pro Gln Gln Pro Phe Pro Gln Pro Gln
85 90 95

Gln Thr Phe Pro Gln Gln Pro Gln Leu Pro Phe Pro Gln Gln Pro Gln
100 105 110

Gln Pro Phe Pro Gln Pro Gln Gln Pro Gln Gln Pro Phe Pro Gln Ser
115 120 125

Gln Gln Pro Gln Gln Pro Phe Pro Gln Pro Gln Gln Phe Pro Gln
130 135 140

Pro Gln Gln Pro Gln Gln Ser Phe Pro Gln Gln Gln Pro Ala Ile
145 150 155 160

Gln Ser Phe Leu Gln Gln Gln Met Asn Pro Cys Lys Asn Phe Leu Leu
165 170 175

Gln Gln Cys Asn His Val Ser Leu Val Ser Ser Leu Val Ser Ile Ile
180 185 190

Leu Pro Arg Ser Asp Cys Gln Val Met Gln Gln Gln Cys Cys Gln Gln
195 200 205

Leu Ala Gln Ile Pro Gln Gln Leu Gln Cys Ala Ala Ile His Ser Val
210 215 220

Ala His Ser Ile Ile Met Gln Gln Glu Gln Gln Gln Gly Val Pro Ile
225 230 235 240

Leu Arg Pro Leu Phe Gln Leu Ala Gln Gly Leu Gly Ile Ile Gln Pro
245 250 255

Gln Gln Pro Ala Gln Leu Glu Gly Ile Arg Ser Leu Val Leu Lys Thr
260 265 270

Leu Pro Thr Met Cys Asn Val Tyr Val Pro Pro Asp Cys Ser Thr Ile
275 280 285

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<213> Unknown

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<223> Diabetogenic epitope homopolymer based on wheat protein

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Leu Arg Arg Gln
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<211> 18

<212> DNA

<213> Artificial

<220>

<223> Forward primer for WP5212 wheat gene

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<210> 11

<211> 18

<212> DNA

<213> Artificial

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<223> Reverse primer for WP5212 wheat gene

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<212> PRT
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Cys Arg Asp Thr Phe Asn Leu Leu Glu Gln Arg Pro Lys Ile Ala Asn
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<210> 13
<211> 15
<212> PRT
<213> Artificial

<220>
<223> Antigenic WP5212 peptide based on wheat protein

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<211> 8
<212> PRT
<213> Unknown

<220>
<223> Tryptic peptide of wheat protein

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Arg Pro Tyr Val Phe Gly Pro Arg
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<210> 15
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<212> PRT
<213> unknown

<220>
<223> Tryptic peptide of wheat protein

<400> 15

Val Ala Ile Met Glu Val Asn Pro Arg
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<211> 17

<212> PRT

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<223> Tryptic peptide of wheat protein

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Arg

<210> 17

<211> 15

<212> PRT

<213> unknown

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<223> Tryptic peptide of wheat protein

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<210> 18

<211> 14

<212> PRT

<213> unknown

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<223> Tryptic peptide of wheat protein

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<210> 19

<211> 15

<212> PRT
<213> unknown

<220>
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<210> 20
<211> 11
<212> PRT
<213> unknown

<220>
<223> Tryptic peptide of wheat protein

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Asp Thr Phe Asn Leu Leu Glu Gln Arg Pro Lys
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<210> 21
<211> 11
<212> PRT
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<220>
<223> Tryptic peptide of wheat protein

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<210> 22
<211> 11
<212> PRT
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<220>
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<210> 23

<211> 10
<212> PRT
<213> unknown

<220>
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<210> 24
<211> 10
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<220>
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<210> 25
<211> 9
<212> PRT
<213> unknown

<220>
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<210> 26
<211> 10
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<210> 27
<211> 8
<212> PRT
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<220>
<223> Tryptic peptide of wheat protein

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<220>
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<210> 31
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<220>
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<220>
<223> Tryptic peptide of wheat protein

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<220>
<223> Tryptic peptide of wheat protein

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<223> Tryptic peptide of wheat protein

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<220>
<223> Tryptic peptide of wheat protein

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Asn Thr Asp Gly Arg
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<210> 36
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<213> unknown

<220>
<223> Tryptic peptide of wheat protein

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His Leu Gly Arg
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<210> 37
<211> 19
<212> PRT
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<220>

<223> Tryptic peptide of wheat protein

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Ser Ser Arg

<210> 38

<211> 19

<212> PRT

<213> unknown

<220>

<223> Tryptic peptide of wheat protein

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His Glu Arg

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<211> 17

<212> PRT

<213> unknown

<220>

<223> Tryptic peptide of wheat protein

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Arg

<210> 40

<211> 16

<212> PRT

<213> unknown

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<223> Tryptic peptide of wheat protein

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<211> 15

<212> PRT

<213> unknown

<220>

<223> Tryptic peptide of wheat protein

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<210> 42

<211> 15

<212> PRT

<213> unknown

<220>

<223> Tryptic peptide of wheat protein

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<210> 43

<211> 14

<212> PRT

<213> unknown

<220>

<223> Tryptic peptide of wheat protein

<400> 43

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<210> 44

<211> 11

<212> PRT

<213> unknown

<220>
<223> Tryptic peptide of wheat protein
<400> 44

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<210> 45
<211> 10
<212> PRT
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<220>
<223> Tryptic peptide of wheat protein
<400> 45

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1 5 10

<210> 46
<211> 10
<212> PRT
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<220>
<223> Tryptic peptide of wheat protein
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<210> 47
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<220>
<223> Tryptic peptide of wheat protein
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1 5

<210> 48
<211> 8
<212> PRT
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<220>
<223> Tryptic peptide of wheat protein

<400> 48

Ser Glu Glu Glu Glu Asp Asp Arg
1 5

<210> 49

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